

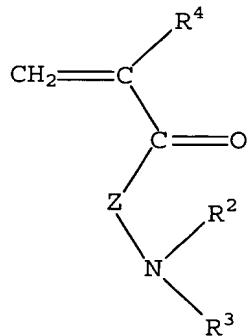
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1 (currently amended): A coating composition comprising:

a) a polymer comprising one or more (meth)acrylate monomers and one or more aminoalkyl(meth) acrylate monomers described by the structure:



where Z is a divalent linking group; R^2 and R^3 are independently selected from H or $\text{C}_1\text{-}\text{C}_6$ linear or branched aliphatic; and R^4 is H or CH_3 , wherein the polymer has a weight average molecular weight of from 5,000 to 20,000;

b) a fluorocarbon polymer; and

c) a solvent,

wherein the fluorocarbon polymer (b) is present as a dispersed phase and a solution comprising the polymer in (a) and the solvent (c) is present as a continuous phase.

Claim 2 (currently amended): The coating composition of claim 1, wherein Z is selected from $-\text{O}-\text{R}^1-$ and $-\text{N}(\text{R}^5)-\text{R}^1-$, wherein R^5 is H or $\text{C}_1\text{-}\text{C}_6$ linear or branched aliphatic, and R^1 is selected from the group consisting of ~~or~~ $\text{C}_1\text{-}\text{C}_{20}$ linear or branched aliphatic, aryl,

alkylaryl, ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

Claim 3 (original): The coating composition of claim 1, wherein the polymer (a) is a thermoplastic resin.

Claim 4 (original): The coating composition of claim 1, wherein the polymer (a) comprises 1 percent to 70 percent by weight of the resin solids portion of the coating composition.

Claim 5 (currently amended): The coating composition of claim 1, wherein the weight-average molecular weight of the polymer (a) is ~~less than 25,000~~ from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 6 (currently amended): The coating composition of claim 1, wherein the weight-average molecular weight of the polymer (a) is from ~~7,000~~ 10,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 7 (original): The coating composition of claim 1, wherein the fluorocarbon polymer is one or more selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 8 (original): The coating composition of claim 1, wherein the weight average molecular weight of the fluorocarbon polymer as determined by gel permeation chromatography using polystyrene standards is from 100,000 to 500,000.

Claim 9 (cancelled)

Claim 10 (currently amended): The coating composition of claim 9 1, wherein the fluorocarbon polymer is in the form of solid dispersible particles.

Claim 11 (original): The coating composition of claim 10, wherein the particle size of the dispersible fluorocarbon polymer particles is 0.1 to 5.0 microns.

Claim 12 (original): The coating composition of claim 1, wherein the fluorocarbon polymer comprises 30 to 99 percent by weight of the resin solids portion of the coating composition.

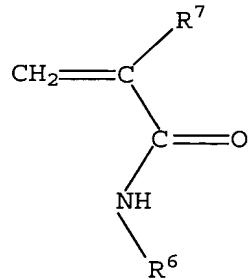
Claim 13 (original): The coating composition of claim 1, wherein the solvent component is selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers, and mixtures thereof.

Claim 14 (original): The coating composition of claim 1, wherein the (meth)acrylate monomers are one or more selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate.

Claim 15 (original): The coating composition of claim 1, wherein the aminoalkyl(meth)acrylate monomer is an N-t-butyl, aminoalkyl (meth)acrylate.

Claim 16 (original): The coating composition of claim 1, wherein the aminoalkyl(meth)acrylate monomer is t-butylaminoethyl methacrylate.

Claim 17 (original): The coating composition of claim 1,
wherein the polymer (a) comprises one or more additional monomers
having the structure:

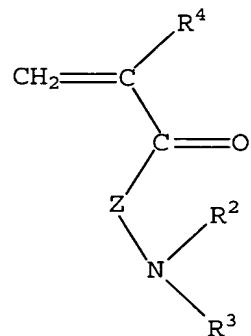


wherein R⁷ is H or CH₃ and R⁶ is -CH₂-OH or -CH₂-O-R¹⁰, where R¹⁰ is C₁-C₆ linear or branched aliphatic.

Claim 18 (currently amended): The coating composition of claim 17, wherein the additional monomers include one or more selected from the group consisting of N-butoxymethylol acrylamide, N-butoxymethylol methacrylamide, N-methylol acrylamide, and N-methylol methacrylamide.

Claim 19 (currently amended): A coating composition comprising:

- a) a continuous phase comprising:
 - (i) a polymer comprising one or more (meth)acrylate monomers and one or more aminoalkyl(meth) acrylate monomers described by the structure:



where Z is a divalent linking group; R² and R³ are independently selected from H or C₁-C₆ linear or branched aliphatic; and R⁴ is H or CH₃, wherein the polymer has a weight average molecular weight of less than 25,000; and

(ii) a solvent; and

b) a dispersed phase comprising solid dispersible particles of a fluorocarbon polymer.

Claim 20 (currently amended): The coating composition of claim 19, wherein Z is selected from -O-R¹- and -N(R⁵)-R¹-, wherein R⁵ is H or C₁-C₆ linear or branched aliphatic, and R¹ is selected from the group consisting of or C₁-C₂₀ linear or branched aliphatic, aryl, alkylaryl, ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

Claim 21 (original): The coating composition of claim 19, wherein the polymer (a) is a thermoplastic resin.

Claim 22 (original): The coating composition of claim 19, wherein the polymer (a) comprises 1 percent to 70 percent by weight of the resin solids portion of the coating composition.

Claim 23 (currently amended): The coating composition of claim 19, wherein the weight-average molecular weight of the thermoplastic resin is less than 25,000 from 2,000 to 22,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 24 (original): The coating composition of claim 19, wherein the weight-average molecular weight of the thermoplastic resin is from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 25 (original): The coating composition of claim 19, wherein the fluorocarbon polymer is one or more selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 26 (original): The coating composition of claim 19, wherein the weight average molecular weight of the fluorocarbon polymer as determined by gel permeation chromatography using polystyrene standards is from 100,000 to 500,000.

Claim 27 (original): The coating composition of claim 26, wherein the particle size of the dispersible fluorocarbon polymer particles is 0.1 to 5.0 microns.

Claim 28 (original): The coating composition of claim 19, wherein the fluorocarbon polymer comprises 30 to 99 percent by weight of the resin solids portion of the coating composition.

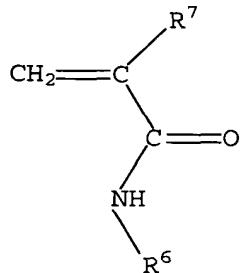
Claim 29 (original): The coating composition of claim 19, wherein the solvent component is selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers, and mixtures thereof.

Claim 30 (original): The coating composition of claim 19, wherein the (meth)acrylate monomers are one or more selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate.

Claim 31 (original): The coating composition of claim 19, wherein the aminoalkyl(meth)acrylate monomer is an N-t-butyl, aminoalkyl (meth)acrylate.

Claim 32 (currently amended): The coating composition of claim 19, wherein the aminoalkyl(meth)acrylate monomer is t-butylaminoethyl methacrylate.

Claim 33 (currently amended): The coating composition of claim 19, wherein the polymer (a) comprises one or more additional monomers having the structure:



wherein R⁷ is H or CH₃ and R⁶ is -CH₂-OH or -CH₂-O-R¹⁰ where R¹⁰ is C₁-C₆ linear or branched aliphatic.

Claim 34 (currently amended): The coating composition of claim 33, wherein the additional monomers include one or more selected from the group consisting of N-butoxymethylol acrylamide, N-butoxymethylol methacrylamide, N-methylol acrylamide and N-methylol methacrylamide.

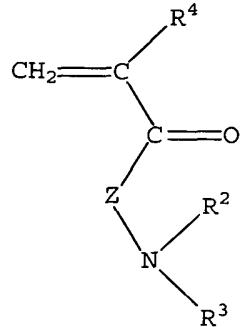
Claim 35 (original): A coating composition comprising:

(a) a continuous phase comprising:

(i) 1 percent to 70 percent by weight based on resin solids of a polymer comprising the polymerized composition of:

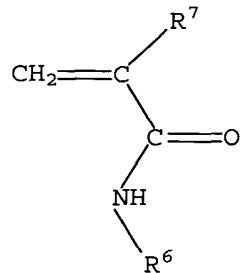
(A) 70 to 99.99 percent by weight, based on the weight of the polymer of one or more monomers selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate;

(B) 0.01 to 10 percent by weight, based on the weight of the polymer of one or more aminoalkyl(meth)acrylate monomers described by the structure:



where Z is a divalent linking group; R² and R³ are independently selected from H or C₁-C₆ linear or branched aliphatic; and R⁴ is H or CH₃; and

(C) 0 to 20 percent by weight, based on the weight of the polymer of one or more additional monomers having the structure:



wherein R⁷ is H or CH₃ and R⁶ is -CH₂-OH or -CH₂-O-R¹⁰ where R¹⁰ is C₁-C₆ linear or branched aliphatic; wherein the sum of the amounts of (a), (b) and (c) is 100 percent and wherein the weight-average molecular weight of the thermoplastic resin is from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards;

(ii) a solvent selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers and mixtures thereof; and

(b) 30 to 99 percent by weight based on resin solids of a dispersed phase comprising solid dispersible particles, ranging in size from 0.1 to 5.0 microns, of one or more fluorocarbon polymers selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 36 (currently amended): The coating composition of claim 35, wherein Z is selected from -O-R¹- and -N(R⁵)-R¹-, wherein R⁵ is H or C₁-C₆ linear or branched aliphatic, and R¹ is selected from the group consisting of or C₁-C₂₀ linear or branched aliphatic, aryl, alkylaryl, ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

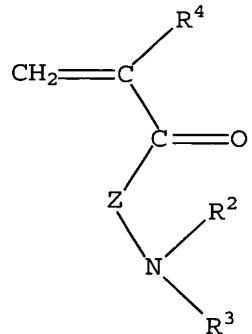
Claim 37 (original): The coating composition of claim 35, wherein the polymer in (i) is a thermoplastic resin.

Claim 38 (withdrawn): A method of coil coating to a metal substrate using a coil coating apparatus comprising:

A) applying a coating composition such that the wet film thickness is 1 to 10 mils, wherein the coating composition comprises:

(i) a continuous phase comprising:

(a) 1 to 70 percent by weight based on total resin solids of a polymer comprising one or more (meth)acrylate monomers and one or more aminoalkyl(meth) acrylate monomers described by the structure:



where Z is a divalent linking group; R² and R³ are independently selected from H or C₁-C₆ linear or branched aliphatic; and R⁴ is H or CH₃; and

(b) 25 - 50 percent by weight of a solvent based on the total weight of the coating composition;

(ii) 30 to 99 percent by weight based on total resin solids of a dispersed phase comprising solid dispersible particles of a fluorocarbon polymer; wherein the total resin solids are 50 - 75 percent by weight based on the total weight of the coating composition; and

B) curing at a temperature of 200°C to 300°C for 10 to 50 seconds to form a cured dry film with a film thickness of 0.5 to 6 mils.

Claim 39 (withdrawn): The method of claim 38, wherein Z is selected from -O-R¹- and -N(R⁵)-R¹-, wherein R⁵ is H or C₁-C₆ linear or branched aliphatic, and R¹ is selected from the group consisting of C₁-C₂₀ linear or branched aliphatic, aryl, alkylaryl,

ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

Claim 40 (withdrawn): The method of claim 38, wherein the polymer (a) is a thermoplastic resin.

Claim 41 (withdrawn): The method of claim 38, wherein the polymer comprises 10percent to 60 percent by weight of the resin solids portion of the coating composition.

Claim 42 (withdrawn): The method claim 38, wherein the weight-average molecular weight of the polymer in (a) is from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 43 (withdrawn): The method of claim 38, wherein the fluorocarbon polymer is one or more selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 44 (withdrawn): The method of claim 38, wherein the weight average molecular weight of the fluorocarbon polymer as determined by gel permeation chromatography using polystyrene standards is from 100,000 to 500,000.

Claim 45 (withdrawn): The method claim 38, wherein the particle size of the dispersible fluorocarbon polymer particles is 0.1 to 5.0 microns.

Claim 46 (withdrawn): The method of claim 38, wherein the fluorocarbon polymer comprises 40 to 90 percent by weight of the resin solids portion of the coating composition.

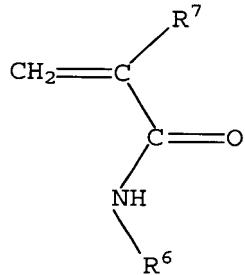
Claim 47 (withdrawn): The method of claim 38, wherein the solvent component is selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers and mixtures thereof.

Claim 48 (withdrawn): The method of claim 38, wherein the (meth)acrylate monomers are one or more selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate.

Claim 49 (withdrawn): The method of claim 38, wherein the aminoalkyl(meth)acrylate monomer is an N-t-butyl aminoalkyl(meth)acrylate.

Claim 50 (withdrawn): The method of claim 38, wherein the aminoalkyl(meth)acrylate monomer is t-butylaminoethyl methacrylate.

Claim 51 (withdrawn): The method of claim 38, wherein the polymer in (i) comprises one or more additional monomers having the structure:



wherein R⁷ is H or CH₃ and R⁶ is -CH₂-OH or -CH₂-O-R¹⁰ where R¹⁰ is C₁-C₆ linear or branched aliphatic.

Claim 52 (withdrawn): The method of claim 51 wherein the additional monomers include one or more selected from the group consisting of N-butoxymethylol acrylamide, N-butoxymethylol methacrylamide, N-methylol acrylamide and N-methylol acrylamide.

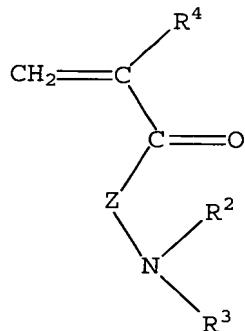
Claim 53 (withdrawn): A substrate coated using the method of claim 38.

Claim 54 (withdrawn): A method of spray coating a substrate using a spray coating apparatus comprising:

A) applying a coating composition such that the wet film thickness is 1 to 4 mils, wherein the coating composition comprises:

(i) a continuous phase comprising:

(a) 1 to 70 percent by weight based on total resin solids of a polymer comprising one or more (meth)acrylate monomers and one or more aminoalkyl(meth) acrylate monomers described by the structure:



where Z is a divalent linking group; R^2 and R^3 are independently selected from H or C_1-C_6 linear or branched aliphatic; and R^4 is H or CH_3 ; and

(b) 25 - 50 percent by weight of a solvent based on the total weight of the coating composition; and

(ii) 30 to 99 percent by weight based on total resin solids of a dispersed phase comprising solid dispersible particles of a fluorocarbon polymer; wherein the total resin solids

are 50 - 75 percent by weight based on the total weight of the coating composition; and

B) curing at a temperature of 200°C to 300°C for 5 to 20 minutes to form a cured dry film with a film thickness of 0.3 to 2 mils.

Claim 55 (withdrawn): The method of claim 54, wherein Z is selected from -O-R¹- and -N(R⁵)-R¹-, wherein R⁵ is H or C₁-C₆ linear or branched aliphatic, and R¹ is selected from the group consisting of C₁-C₂₀ linear or branched aliphatic, aryl, alkylaryl, ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

Claim 56 (withdrawn): The method of claim 54, wherein the polymer in (a) is a thermoplastic resin.

Claim 57 (withdrawn): The method of claim 54, wherein the polymer in (a) comprises 10 percent to 60 percent by weight of the resin solids portion of the coating composition.

Claim 58 (withdrawn): The method of claim 54, wherein the weight-average molecular weight of the polymer in (a) is from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 59 (withdrawn): The method of claim 54, wherein the fluorocarbon polymer is one or more selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 60 (withdrawn): The method of claim 54, wherein the weight average molecular weight of the fluorocarbon polymer as

determined by gel permeation chromatography using polystyrene standards is from 100,000 to 500,000.

Claim 61 (withdrawn) : The method claim 54, wherein the particle size of the dispersible fluorocarbon polymer particles is 0.1 to 5.0 microns.

Claim 62 (withdrawn) : The method of claim 54, wherein the fluorocarbon polymer comprises 40 to 90 percent by weight of the resin solids portion of the coating composition.

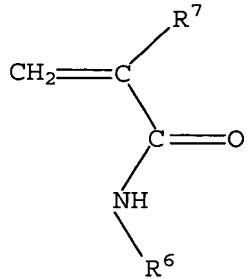
Claim 63 (withdrawn) : The method of claim 54, wherein the solvent component is selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers, and mixtures thereof.

Claim 64 (withdrawn) : The method of claim 54, wherein the (meth)acrylate monomers are one or more selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate.

Claim 65 (withdrawn) : The method of claim 54, wherein the aminoalkyl(meth)acrylate monomer is an N-t-butyl aminoalkyl (meth)acrylate.

Claim 66 (withdrawn) : The method of claim 54, wherein the aminoalkyl(meth)acrylate monomer is t-butylaminoethyl methacrylate.

Claim 67 (withdrawn) : The method of claim 54, wherein the polymer in (a) comprises one or more additional monomers having the structure:



wherein R⁷ is H or CH₃ and R⁶ is -CH₂-OH or -CH₂-O-R¹⁰ where R¹⁰ is C₁-C₆ linear or branched aliphatic.

Claim 68 (withdrawn): The method of claim 67 wherein the additional monomers include one or more selected from the group consisting of n-butoxymethylol acrylamide, n-butoxymethylol methacrylamide, N-methylol acrylamide, and N-methylol methacrylamide.

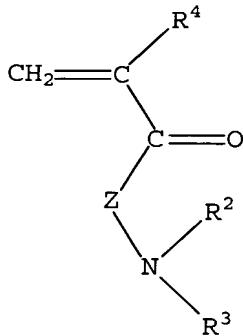
Claim 69 (withdrawn): A substrate coated using the method of claim 54.

Claim 70 (withdrawn): A method of extrusion coating a substrate using an extrusion coating apparatus comprising:

A) applying a coating composition such that the wet film thickness is 1 to 6 mils, wherein the coating composition comprises:

(i) a continuous phase comprising:

(a) 1 to 70 percent by weight based on total resin solids of a polymer comprising one or more (meth)acrylate monomers and one or more aminoalkyl(meth) acrylate monomers described by the structure:



where Z is a divalent linking group; R² and R³ are independently selected from H or C₁-C₆ linear or branched aliphatic; and R⁴ is H or CH₃; and

(b) 25 - 50 percent by weight of a solvent based on the total weight of the coating composition; and

(ii) 30 to 99 percent by weight based on total resin solids of a dispersed phase comprising solid dispersible particles of a fluorocarbon polymer; wherein the total resin solids are 50 - 75 percent by weight based on the total weight of the coating composition; and

B) curing at a temperature of 200°C to 500°C for 10 seconds to 20 minutes to form a cured dry film with a film thickness of 0.3 to 4 mils.

Claim 71 (withdrawn): The method of claim 70, wherein Z is selected from -O-R¹- and -N(R⁵)-R¹-, wherein R⁵ is H or C₁-C₆ linear or branched aliphatic, and R¹ is selected from the group consisting of C₁-C₂₀ linear or branched aliphatic, aryl, alkylaryl, ethoxylated alkyl, ethoxylated aryl, ethoxylated alkylaryl, propoxylated alkyl, propoxylated aryl, and propoxylated alkylaryl.

Claim 72 (withdrawn): The method of claim 70, wherein the polymer (a) is a thermoplastic resin.

Claim 73 (withdrawn): The method of claim 70, wherein the polymer in (a) comprises 10 percent to 60 percent by weight of the resin solids portion of the coating composition.

Claim 74 (withdrawn): The method of claim 70, wherein the weight-average molecular weight of the thermoplastic resin is from 7,000 to 20,000, as determined by gel permeation chromatography using polystyrene standards.

Claim 75 (withdrawn): The method of claim 70, wherein the fluorocarbon polymer is one or more selected from the group consisting of poly(vinylidene fluoride), poly(vinyl fluoride), poly(chlorotrifluoroethylene), poly(tetrafluoroethylene), and poly(trifluoroethylene).

Claim 76 (withdrawn): The method of claim 70, wherein the weight average molecular weight of the fluorocarbon polymer as determined by gel permeation chromatography using polystyrene standards is from 100,000 to 500,000.

Claim 77 (withdrawn): The method of claim 70, wherein the particle size of the dispersible fluorocarbon polymer particles is 0.1 to 5.0 microns.

Claim 78 (withdrawn): The method of claim 70, wherein the fluorocarbon polymer comprises 40 to 90 percent by weight of the resin solids portion of the coating composition.

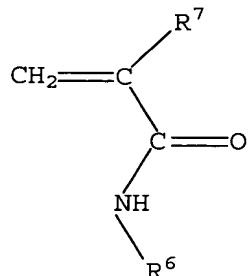
Claim 79 (withdrawn): The method of claim 70, wherein the solvent component is selected from the group consisting of aliphatic hydrocarbons, aromatic hydrocarbons, ketones, esters, glycols, ethers, ether-esters, glycol ethers, glycol ether-esters, alcohols, ether-alcohols, phthalate plasticizers, and mixtures thereof.

Claim 80 (withdrawn) : The method of claim 70, wherein the (meth)acrylate monomers are one or more selected from the group consisting of methyl(meth)acrylate, n-butyl(meth)acrylate, t-butyl(meth)acrylate, and ethyl(meth)acrylate.

Claim 81 (withdrawn) : The method of claim 70, wherein the aminoalkyl(meth)acrylate monomer is an N-t-butyl aminoalkyl (meth)acrylate.

Claim 82 (withdrawn) : The method of claim 70, wherein the aminoalkyl(meth)acrylate monomer is t-butylaminoethyl methacrylate.

Claim 83 (withdrawn) : The method of claim 70, wherein the polymer in (a) comprises one or more additional monomers having the structure:



wherein R^7 is H or CH_3 and R^6 is $-\text{CH}_2\text{-OH}$ or $-\text{CH}_2\text{-O-R}^{10}$ where R^{10} is $\text{C}_1\text{-C}_6$ linear or branched aliphatic.

Claim 84 (withdrawn) : The method of claim 83 wherein the additional monomers include one or selected from the group consisting of n-butoxymethylol acrylamide, n-butoxymethylol methacrylamide, N-methylol acrylamide, and N-methylol methacrylamide.

Claim 85 (withdrawn) : A substrate coated using the method of claim 70.